Health Alert

August 9, 2002

HA#34

FROM: **RONALD W. CATES**
INTERIM DIRECTOR

SUBJECT: **WEST NILE TESTING – GUIDANCE FOR PHYSICIANS**

The Department of Health and Senior Services (DHSS) is providing the following guidance to physicians concerning West Nile virus testing. Please contact the Department if you have any questions at 1-800-392-0272.

DHSS is providing the following guidance to help physicians work together with local public health agencies (LPHAs) and the DHSS to ensure public health protection for patients who might be at risk of infection from West Nile virus, an arbovirus that is transmitted by mosquitoes. West Nile virus infections are being reported increasingly in neighboring states, and West Nile virus infection has been documented in birds and horses in Missouri this year. Some human cases of West Nile encephalitis may occur in Missouri if current trends continue. Missouri physicians are encouraged to test for and are required to report mosquito-borne diseases.

Clinical and Epidemiological Aspects: Most people infected with West Nile virus do not have any symptoms. About 20% of infected patients have an illness with fever. Less than 1% of persons infected with West Nile virus will develop severe illness. Most patients who present for medical care have fever, weakness, and headache. More severe illness can include encephalitis and is marked by neck stiffness, muscle weakness, disorientation, coma, tremors, convulsions, myoclonus, and in the most severe cases, death. Some patients in the New York outbreak had flaccid paralysis and an illness resembling Guillain-Barre syndrome, or myelitis. West Nile encephalitis cases are expected to occur most frequently in the late summer or early fall in temperate climates such as Missouri. Among those with severe illness due to West Nile virus, case-fatality rates range from 3% to 15% and are highest among the elderly. West Nile encephalitis is NOT transmitted from person-to-person. Preventing mosquito bites is the cornerstone of West Nile virus infection prevention, through personal protective measures, and eliminating mosquito-breeding sites.

Laboratory Studies: Patients with symptoms consistent with encephalitis, viral meningitis, or Guillain-Barre syndrome may benefit from laboratory testing of cerebrospinal fluid and serum samples (acute & 14-21 day convalescent) for arboviruses including: St. Louis encephalitis, western equine encephalitis, eastern equine encephalitis, California encephalitis, as well as West Nile virus. These tests are available through the State Public Health Laboratory (telephone: (573) 751-0633.) **(See section below with State Public Health Laboratory procedures for testing).**

Public Health Reporting Requirements: The local public health agencies in your area should be notified immediately of any suspected arboviral infections in patients including West Nile virus. The Missouri Department of Health and Senior Services also should be notified at 800-392-0272. A public health physician is available for consultation if needed.

How to contact us:
Office of the Director
912 Wildwood
P.O. Box 570
Jefferson City, MO 65102
Telephone: (800) 392-0272
Fax: (573) 751-6041
Website: www.dhss.state.mo.us

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

A recent publication about West Nile virus helpful to physicians is: Annals of Internal Medicine 2002;137: 173-179. http://www.annals.org/issues/v137n3/full/200208060-00009.html
Other useful resources include internet web sites: http://www.dhss.state.mo.us/WestNileVirus/index.html
http://www.cdc.gov/ncidod/dvbid/westnile/publications.htm
http://www.cdc.gov and http://www.cdc.gov/mmwr/

TESTING AT THE STATE PUBLIC HEALTH LABORATORY:

The Missouri Department of Health and Senior Services, State Public Health Laboratory is the Missouri site for testing West Nile virus in humans. The Department and State Lab may be contacted at the following numbers:

Missouri Dept of Health and Senior Services (800) 392-0272 (24 hour)
State Public Health Laboratory (573) 751-3334 or 751-0633

INSTRUCTIONS FOR SENDING DIAGNOSTIC SPECIMENS FOR SEROLOGICAL TESTING FOR ARBOVIRUS TO THE STATE PUBLIC HEALTH LAB

Physicians and laboratories may send specimens to the State Public Health Laboratory using the following protocols. There will be no cost for the testing charged to the provider.

Specimens received for Arbovirus serology will be tested by the State Public Health Lab against antigens of:

1. Flavivirus Group. This includes W. Nile Virus (WNV) and St. Louis Encephalitis (SLE)
2. Eastern Equine Encephalitis (EEE)
3. Western Equine Encephalitis (WEE)
4. LaCrosse/California Encephalitis Group

Two procedures are available:

1. IgM antibody detection on acute serum or acute CSF
2. IgG antibody detection on paired sera.

SPECIMEN COLLECTION-

For IgM Arbovirus antibody panel collect acute serum 0 to 10 days after onset of symptoms. Collect CSF as soon as possible after onset of symptoms.

For IgG Arbovirus antibody panel collect acute serum 0-10 days after onset and collect convalescent serum 2-3 weeks after acute serum was collected.

Collect serum in a red-top vacutainer tube. It is best to send only serum and not whole blood. Whole blood may be sent if no method is available for removing the serum. At least 0.5 ml of serum and 1.0 ml of CSF is required for serological testing.

SUBMISSION FORM-

Complete Missouri Department of Health and Senior Services Lab form MO 580-0762 (Virus Serology Test Request). (Available at: http://www.dhss.state.mo.us/Lab/arbovirus_fax_form.pdf)

Under "*Test Requested*" write "*Arbovirus Serology*".

IMPORTANT: Testing will not be initiated without the inclusion of the following:

1. **Date of onset of symptoms.**
2. **Date of specimen collection**
3. **Any pertinent travel history (3 months prior to onset)**
4. **Patient's name on submission form and specimen.**

SHIPPING CONTAINER-

Specimen for serological testing should be kept cool, but not frozen. Send serum and CSF specimens packed with freezer pillows in a styrofoam box. Shipping containers are available upon request.

Make sure specimens are packed securely to prevent breakage.

TESTING RESULTS-

Testing results will normally be available 5 to 7 days after submitting the sample. Providers may inquire about the availability of results at any time by contacting the State Health Laboratory (573-751-3334).

ACUTE SERUM AND ACUTE CSF

Acute sera specimens will be tested against an IgM antibody panel that includes Flavivirus, EEE, WEE, SLE, and LaCrosse/California. CSF specimens will be tested for Flavivirus only.

Upon completion of testing, results will be mailed to the submitter.

Results for IgM Serology

1. POSITIVE.....Indicates recent infection.

2. EQUIVOCAL ..Results of borderline significance (Convalescent specimen required for proper interpretation)
3. NEGATIVE.....Results fail to indicate a recent infection.

All specimens POSITIVE for Flavivirus will be forwarded to CDC in Ft. Collins, Colorado for further testing to determine which Arbovirus antibody (SLE or WNV) is present.

Results for IgG Serology

Two testing procedures will be used for IgG serology.

1. Fluorescent Antibody (FA) will be used for EEE, SLE, WEE, and LaCrosse/California Group.
2. ELISA will be used for Flavivirus Group.
   - FA results will be given in "titers"
   - ELISA results will be given in "Optical Density"

Both the FA and the ELISA will compare the amount of IgG antibody between the acute and the convalescent samples. A significant rise in IgG antibody levels for a given Arbovirus would be indicative of a recent infection.

**For Flavivirus IgG antibody a 2nd test (PRNT) will be performed by CDC at Ft. Collins, Colorado to determine antibody level.

Depending on the results one of the following interpretations will be reported:

1.) No significant antibodies detected to the agents listed. (All results Negative for IgG antibody)

2.) Serologic results indicate a recent infection with_____ (A significant rise in IgG was detected).
3.) Serologic results indicate an exposure at some undetermined time with_____. (Antibody was detected in both acute and convalescent specimens but significant rise was not detected.

NOTE: All acute sera and/or CSF specimens will be tested for IgM antibody levels to the Arbovirus panel. Results will be sent to the submitter and at that time a request will be made for a convalescent serum sample. Due to the possibility of a false negative IgM report and to insure the accuracy of our reporting, **we must receive a convalescent specimen**. The convalescent specimen should be collected 2-3 weeks after the acute serum was drawn.

If you have any questions please call 573-751-0633 ask for Mike Hanauer or Kelly Carlson

This laboratory information can also be found at the State Public Health Laboratory website: www.dhss.state.mo.us/Lab/index.htm Click on the West Nile icon at the top of the page. Note the revision date at the top of the information page. When information changes the web page will be updated and the revision date changed. The SPHL homepage can also be reached through the Department of Health and Senior Services web site: www.dhss.state.mo.us by clicking on State Public Health Laboratory link.

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